# MINORITY EDUCATOR INSTITUTES (MEI)

#### FY 2017 ANNUAL PERFORMANCE REPORT

#### **FUNDING SOURCE:**

MINORITY UNIVERSITY RESEARCH AND EDUCATION PROJECT (MUREP)
OFFICE OF EDUCATION

#### LINE OF BUSINESS:

**EDUCATOR PROFESSIONAL DEVELOPMENT** 

#### MANAGING ORGANIZATION:

STENNIS SPACE CENTER OFFICE OF EDUCATION

#### **ACTIVITY MANAGER:**

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#### **ACTIVITY DESCRIPTION**

In 2015 Texas State University was awarded a three-year NASA MUREP cooperative agreement to coordinate and facilitate MUREP Educator Institutes (MEIs) at the 10 NASA Centers beginning in Summer 2016. Eligible MEI participants include pre-service teachers and STEM education faculty members from Minority Serving Institutions (MSIs). MEI operates under the NASA Stennis Space Center Office of Education.

The purpose of this Annual Report is to summarize and document activities related to MEIs that occurred during FY 2017. A previous annual reported documented the FY 2016 activities that included 11 week-long MEIs at the 10 NASA Centers and served 340 pre-service teachers and 65 faculty sponsors from 56 Minority Serving Institutions (MSIs).

The 2017 MEI experience consists of participation in a 5-day Institute at a NASA Center and completion of 9 hours of online NASA-related professional development prior to the Institute, and an additional 7 hours of online professional development following the Institute.

The MEI coordination tasks fulfilled by the MEI staff at Texas State include:

- Coordination of MEI Instructional Teams
- Participant Recruitment & Management of Participant Stipends
- Arrangements for Institute Transportation, Meals & Refreshments, Lodging, & Museum/Venue Tickets
- On-Site Support During MEIs

#### **ACTIVITY GOALS**

The goals of MEI are as follows:

#### **Goals:**

- To utilize NASA's unique assets, resources and subject matter experts to serve as the foundation for a high-quality MEI experience for MSI preservice teachers and faculty sponsors;
- To collaborate with MSIs in order to solicit their advocacy of the Institute experience and to promote the opportunity to their STEM teacher candidates;
- To establish partnerships that will result in participants interacting with NASA professional resources and subject matter experts that they can utilize throughout their professional careers to enrich their teaching;
- To implement the recruitment and administrative structures necessary to enable up to 1,500 STEM educators to successfully participate in an Institute experience at one of the 10 NASA Centers across the U.S.;
- To provide a high-quality integrated Institute experience for participants comprised of meaningful
  and relevant pre-, during- and post- professional learning activities that support the integration of
  NASA resources with high-impact, culturally-relevant instructional practices; and
- To implement a well-coordinated evaluation and follow-up plan that gathers ongoing data from all stakeholders to assess project activities and their impact on participants, to support data reporting needs, to extend the learning community formed in the Institutes, and to generate lessons learned to inform future professional development practices.

#### **ACTIVITY BENEFIT TO PERFORMANCE GOALS**

#### **FY 2017 Performance Goals**

# 2.4.1: Assure that students participating in NASA higher education projects are representative of the diversity of the Nation.

Given that only pre-service teachers and faculty sponsors from Minority Serving Institutions (MSIs) are eligible to participate in MEIs, each Institute serves a highly diverse population. Twelve (12) MUREP Educator Institutes were conducted in Summer 2017. Participants in the Institutes included a total of 355 pre-service teachers and 80 STEM Education faculty members; **the 435 total participants represent 71 different MSIs.** Given that each institute experience is approximately 40 hours in length, **the 435 participants received 17,400 hours of face-to-face on-site NASA professional development**.

#### Participating Institutions by MSI Designation Type\*

HBCUs 22 PBIs 4 AIANSI 5 HIS 31 AANAPISI 13 TCU 1

#### Participants by Role

Pre-Service Teachers 355 STEM Education Faculty 80

#### Participants by Gender

Male 82 Female 353

#### **Disability**

Three (3) participants requested and were provided special accommodations based upon disabilities

The following table shows the dates and locations of the Institutes, along with the number of student and faculty participants from each participating MSI.

Langley MEI, May 22-26, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Limestone College	6	1	7
Livingston College	5	1	6
Norfolk State University	3	1	4
North Carolina A&T State University	5	1	6
North Carolina Wesleyan College	5	1	6
Virginia State University	5	1	6
Total Participants	29	6	35

Marshall M	EL. June	5-9.	2017
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<sup>\*</sup>Five (5) participating universities are classified as both HSI and AANAPISI

Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Alabama A&M University	3	1	4
Tennessee State University	4	2	6
University of Arkansas	8	2	10
Total Participants	15	5	20

Goddard MEI, June 12-16, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Bowie State University	2	1	3
Coppin State University	3	1	4
Essex County College	3	1	4
Lehman College	3	1	4
Morgan State University	14	3	17
William Paterson University	7	1	8
Total Participants	32	8	40

Johnson MEI #1, June 12-16, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Huston-Tillotson University	5	1	6
Northeastern State University	6	1	7
Sul Ross State University	4	1	5
Tarrant County College South Campus	3	1	4
Texas A&M University–Corpus Christi	3	1	4
Texas Southern University	2	1	3
Texas Woman's University	6	1	7
University of Texas at Arlington	4	1	5
University of Texas Rio Grande Valley	3	1	4
University of the Incarnate Word	5	1	6
Total Participants	41	10	51

Kennedy MEI #1, June 12-16, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Albany State University	8	1	9
Broward College	4	1	5
Florida A&M University	4	1	5
Fort Valley State University	3	1	4
Inter American University of Puerto Rico- Arecibo	11	1	12
Campus			
Nova Southeastern University	2	0	2
Spelman College	2	1	3
Total Participants	34	6	40

Stennis MEI, June 12-16, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Jackson State University	0	1	1
Mississippi Valley State University	2	1	3
Southern University and A&M College	4	1	5
Total Participants	6	3	9

Johnson MEI #2, June 19-23, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Colorado State University-Pueblo	5	1	6
Paul Quinn College	3	1	4
Texas A&M International University	5	1	6
Texas College	4	1	5
Texas State Technical College	5	1	6
Texas State University	7	2	9
University of Houston Clear Lake	2	1	3
Total Participants	31	8	39

Kennedy MEI #2, June 19-23, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Florida A&M University	3	1	4
Palm Beach State College	3	1	4
Pontificia Universidad Catolica de Puerto Rico, Recinto	6	1	7
Arecibo			
Savannah State University	2	1	3
University of Puerto Rico at Arecibo	5	1	6
University of Puerto Rico at Mayaguez	7	1	8
University of Puerto Rico, Rio Piedras Campus	5	1	6
University of the Virgin Islands	4	0	4
Valencia College	4	1	5
Total Participants	39	8	47

JPL MEI, June 26-30, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
California State University Dominguez Hills	7	1	8
California State University, Northridge	16	3	19
La Sierra University	3	1	4
Northern Marianas College	4	1	5
University of California, Riverside	8	1	9
Total Participants	38	7	45

Glenn MEI, June 10-14, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Bowie State University	1	0	1
Chicago State University	3	1	4
Metropolitan State University	4	1	5
Texas State University	5	1	6
The College of Lake County	7	1	8
Total Participants	20	4	24

Armstrong MEI, July 17-21, 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
California State University, Bakersfield	6	2	8
La Sierra University	2	1	3
Northern Arizona University	7	1	8
San Diego State University	5	1	6
University of California, Riverside	7	1	8
University of Nevada, Las Vegas	4	1	5
Total Participants	31	7	38

Ames MEI, July 31-Aug. 4 2017			
Participating Minority Serving Institutions (MSIs)	Student	Faculty	Total
	Participants	Participants	Participants
Brandman University	3	1	5
Brigham Young University	5	1	6
California State University, Fresno	5	1	6
Chaminade University of Honolulu	7	1	8
Nevada State College	5	1	6
Notre Dame de Namur University	5	1	6
Salish Kootenai College	6	1	7
University of Montana	3	1	4
Total Participants	39	8	47

## 2.4.2: Continue to support STEM educators through the delivery of NASA education content and engagement in educator professional development opportunities.

In addition to the 40-hour onsite Institute experience delivered at a NASA Center, each MEI participant was required to complete 9 hours of NASA-related online professional development prior to attending the MEI. This PD requirement is managed through the Digital Badging System operated by the NASA STEM Educator Professional Development Collaborative (EPDC). The 9 hours of online Pre-Institute PD consisted of:

MEI Overview Webinar (1.5 hrs.) Center-specific Orientation Webinar (1.5 hrs.) Review of Badging System Videos (1 hr.) Attending an On-Site Pre-MEI Meeting on University Campus (2 hrs.) Viewing Additional NASA EPDC Webinars (2 hours) Completing Pre-Institute PLEAS-3 Survey (1 hr.)

The 7 hours of online Post-Institute PD consisted on:

Participant Feedback Form (1.0 hour)

Post Institute Reflection (1.0 hour)

Complete Post PLEAS-3 survey from Qualtrics (1.5 hours)

Teach a NASA Lesson Utilizing NASA Resources (2.5 hours)

Reflect on your Lesson alone and with your Faculty Sponsor (1.0 hour)

In 2017, the 435 MEI participants were required to complete a total of 6,960 hours of NASA online professional development credit.

# 2.4.4: Continue to provide opportunities for learners to engage in STEM education through NASA unique content provided to informal education institutions designed to inspire and educate the public.

As a part of completing the post-MEI badge, each MEI participant was required to deliver a NASA lesson to group of learners, and to debrief this lesson with his/her faculty sponsor, and do a reflective write-up about the experience. Many participants chose to deliver these lesson in an informal setting such as a community summer camps, at YMCAs, or after-school programs.

## 2.4.5: Continue to provide opportunities for learners to engage in STEM education engagement activities that capitalize on NASA unique assets and content.

Each MEI participant leaves the Institute with a wide variety of NASA classroom resources that they can use in their classrooms with their students. During the Institute, participants experience their activities as learners and then engage in focused discussions about how these activities can be implemented in their own classrooms with their future students. Through this "multiplier effect," numerous K-12 and university students have the opportunity to experience NASA learning activities that feature NASA unique assets and content under the direction of educators who have completed the MEI experience.

#### **ACTIVITY ACCOMPLISHMENTS**

- The primary accomplishments of FY 2017 included the conducting of 12 successful week-long MEIs at the 10 NASA Centers across the U.S., and the affiliated recruitment activities that yielded the 435 participants representing 71 Minority Serving Institutions.
- Major enhancements occurred this year to the MEI website (<a href="https://www.txstate-epdc.net/nasa-mei/">https://www.txstate-epdc.net/nasa-mei/</a>). In addition to updating the dates of the Institutes, photos from each of the 2016 Institutes were included along with specific participant comments from that Institute. In addition, two videos produced at the 2016 MEIs were added as recruitment tools to the website.
- MEI was featured in presentations at a number of professional conferences and MEI recruitment
  materials were disseminated at exhibit booths at these conferences, including Association of
  Teacher Educators (ATE), National Science Teachers Association (NSTA), National Council of
  Teachers of Mathematics (NCTM), Space Exploration Educator's Conference (SEEC); American
  Society of Engineering Educators (ASEE), International Technology and Engineering Education

Association (ITEEA), and the Consortium of State Organizations for Texas Teacher Education (CSOTTE).

 A new MEI recruitment video featuring activities from the 2017 MEIs was produced and released in August 2017. The new video can be viewed at this link: <a href="https://www.txstate-epdc.net/nasa-mei/">https://www.txstate-epdc.net/nasa-mei/</a>

#### **ACTIVITY CONTRIBUTION TO ANNUAL PERFORMANCE INDICATORS (APIs)**

#### **FY 2017 Annual Performance Indicators**

ED-17-1: Provide significant, direct student awards in higher education to (1) students across all institutional categories and levels (as defined by the U.S. Department of Education); (2) racially or ethnically underrepresented students, (3) women, and (4) persons with disabilities at percentages that meet or exceed the national percentages for these populations, as determined by the most recent, publicly available data from the U.S. Department of Education's National Center for Education Statistics for a minimum of two of the four categories.

In FY 2017, MEI funded the following expenses for each of the 435 MEI participants:

- Participant Stipend (\$500 for pre-service teachers; \$750 for faculty sponsors)
- Four Nights Hotel Lodging
- Breakfasts and lunches during 5-day Institute
- Daily Roundtrip Transportation from Hotel to NASA Center

#### Participants by Role

Pre-Service Teachers	355
STEM Education Faculty	80

#### **Participants by Gender**

Male	82
Female	353

#### **Disability**

Three (3) participants requested special accommodations based upon disabilities

#### Participating Institutions by MSI Designation Type\*

HBCUs	22
PBIs	4
AIANSI	5
HIS	31
AANAPISI	13
TCU	1

<sup>\*</sup>Five (5) participating universities are classified as both HSI and AANAPISI

ED-17-2: Engage with at least 80,000 educators in NASA-supported professional development, research, and internships that use NASA-unique STEM content.

In FY 2017, the 435 MEI participants each engaged in:

- 40 hours of face-to-face professional development at a NASA Center
- 16 hours of Pre-Institute online professional development

• 7 hours of Post-Institute online professional

Collectively, the 435 MEI participants in FY 2017, engaged in 24,360 hours of NASA-related professional development.

#### **ACTIVITY IMPROVEMENTS MADE IN THE PAST YEAR**

In early, FY 2017, a part-time evaluation specialist was added to the MEI staff which has enabled the project to provide substantial evaluation information for each Center to use in their planning for the 2017 MEI. Individual debriefs were conducted with each MEI's instructional teams in preparation for them receiving the evaluation information. Detailed plans for refinements were made at each MEI and these refinements were implemented in their 2017 MEIs. A great deal of information harvested by the MEI evaluation specialist has also been used for presentations, recruitment materials, and website enhancements.

Modifications have also been made in the recruitment and registration procedures to streamline the process for participants. New procedures were developed to monitor the progress of participants through the completion of the Pre-MEI and Post MEI badges, and to process participant stipends associated with badge completions.

Recently, modifications have been made to the process that will be used in 2018 for the NASA Centers to request transportation arrangements and for ordering meals from vendors not located at the NASA Centers.

#### ACTIVITY PARTNERS AND ROLE OF PARTNERS IN ACTIVITY EXECUTION

The primary purpose of having faculty sponsors attend MEI with their pre-service teachers was to enhance the university's capacity to share NASA content and resources with other students and faculty members and to develop a designated liaison who can facilitate future linkages between NASA Center and the universities. To facilitate this process, universities that participated in an MEI are asked to become members of the NASA MSI Emerging Stars Network

Emerging Stars Network members are institutions with official designations as MSIs that have:

- faculty and/or students who participate in one or more NASA professional development opportunities annually;
- an identified faculty representative who helps facilitate communication with faculty members and students about NASA opportunities and resources; and
- agreed to serve NASA EPDC in an advisory capacity on matters related to enhancing diversity in STEM teacher preparation and fostering culturally relevant STEM pedagogy.

Emerging Stars Network member institutions receive:

- a membership plaque suitable for display,
- invitational priority to participate in special events,
- listing as NASA MSI Emerging Stars Network member institutions on the MEI and NASA STEM Educator Professional Development Collaborative websites and on relevant publications, and
- priority for professional development support and NASA resources.

Below is a listing of the member institutions of the NASA MSI Emerging Stars Network, their affiliated NASA Center partners, and their faculty representatives:

MSI	NASA CENTER	MSI REPRESENTATIVE/S
Alabama A&M University	Marshall Space Flight Center	Samantha Strachan, Derrick
		Davis, Johanna Massey

Albany State University	Kennedy Space Center	Rhonda Porter, Dorene Medlin
Bakersfield College	Armstrong Flight Research Center	TBD
Bowie State University	Goddard Space Flight Center	Jennifer Johnson, Florence Etop
Brandman University	Ames Research Center	David Sloan
Brigham Young University	Ames Research Center	Ehren Haderlie
Bronx Community College	Glenn Research Center	Jerald Tsekas
Broward College	Kennedy Space Center	Jose Ospina
California State University Dominguez Hills	Jet Propulsion Laboratory	Cecilia Duenas, Keri Porter
California State University Los Angeles	Jet Propulsion Laboratory	Paula Arvedson
California State University San	Armstrong Flight Research	Ingrid Flores
Marcos	Center	
California State University, Bakerfield	Armstrong Flight Research Center	Ron Hughes, Holli Gonzalez
California State University, Fresno	Ames Research Center	Kasey Vang, Pahoua Lee
California State University, Fullerton	Armstrong Flight Research Center	TBD
California State University,	Jet Propulsion Laboratory	Susan Belgrad, Norman Herr,
Northridge	1	Steve Holle
Chaminade Universtity of Honolulu	Ames Research Center	Katrina Roseler
Chicago State University	Glenn Research Center	Karel Jacobs, Chyrese Wolf
Colorado State University-Pueblo	Johnson Space Center	Julie Milam
Coppin State University	Goddard Space Flight Center	Leontye Lewis
Delaware State University	Goddard Space Flight Center	Sae Yeol Yoon
Essex County College	Goddard Space Flight Center	Jill Stein, Bridget Turner
Florida A&M University	Kennedy Space Center	Edith Davis, David White
Fort Valley State University	Kennedy Space Center	Edward Hill, Alfrieda Manson
Grambling State University	Stennis Space Center	Loretta Jaggers
Hampton University	Langley Research Center	
Harris- Stowe State University	Marshall Space Flight Center	Statha Kline-Cherry
Huston–Tillotson University	Johnson Space Center	Jan Seiter, Aimee Tennant
Inter American University of Puerto Rico- Arecibo Campus	Kennedy Space Center	Jose Donate
Jackson State University	Stennis Space Center	Gloria Miller, Antonius Caldwell, Shirley Burnett
La Sierra University	Jet Propulsion Laboratory	DeAnne Knipschild, Heather Barker
Langston University	Johnson Space Center	Randy Hunt
Lehman College	Goddard Space Flight Center	Gillian Bayne
Limestone College	Langley Research Center	Shelly Meyers
Livingstone College	Langley Research Center	Micah Griffin
Metropolitan State University	Glenn Research Center	Nicholas Hartlep
Mississippi Valley State	Stennis Space Center	Candace Stevens, Raymond
University	0.11.10	Williams
Morgan State University	Goddard Space Flight Center	Marciea McMillian, Kea Smith,

		Thurman Bridges, Simone Gibson
Nevada State College	Ames Research Center	Sarah Bryans-Bongey, Brian Gleason
New York Institute of Technology	Glenn Research Center	Shiang-Kwei Wang, Hui-Yin Hsu
Norfolk State University	Langley Research Center	Arthur Bowman
North Carolina A&T State	Langley Research Center	Tyrette Carter
University		
North Carolina Central University	Langley Research Center	Solomon Abraham
North Carolina Wesleyan College	Langley Research Center	Danielle Madrazo, Gail Stafford, Lois Hart
Northeastern Illinois University	Glenn Research Center	Hyewon Kim
Northeastern State University	Johnson Space Center	Pamela Christol
Northern Arizona University	Armstrong Flight Research Center	Joelle Clark, David Thompson
Northern Marianas College	Jet Propulsion Laboratory	Rosaline Cepeda
Northern Oklahoma College	Johnson Space Center	Kristi Orr
Notre Dame de Namur University	Ames Research Center	Stephanie Demaree
Nova Southeastern University	Kennedy Space Center	•
Oglala Lakota College	Johnson Space Center	Dorothy Gillespie
Palm Beach State College	Kennedy Space Center	Carolyn Slygh
Paul Quinn College	Johnson Space Center	Rosa Johnson
Pontificia Universidad Catolica de	Kennedy Space Center	Brenda Morales
Puerto Rico, Recinto Arecibo	Fire control	
Prairie View A&M University	Johnson Space Center	Cheri Lewis, Beverly Roberts
Salish Kootenai College	Ames Research Center	Amy Burland, Michael Stone, Ann Stone
San Diego State University	Armstrong Flight Research Center	Donna Ross
Savannah State University	Kennedy Space Center	Kisha Cunningham
Sinte Gleska University	Johnson Space Center	Dorothy Gillespie
Southern University and A&M College	Stennis Space Center	Tonya Rose
Spelman College	Kennedy Space Center	Valeisha Ellis
Sul Ross State University	Johnson Space Center	Francine Richter
Tarrant County College South Campus	Johnson Space Center	Shereah Taylor
Tennessee State University	Marshall Space Flight Center	John Tiller, Clara Young
Texas A&M International University	Johnson Space Center	Jane Elizabeth Casey
Texas A&M University–Corpus Christi	Johnson Space Center	Tonya Jeffery, Lucinda Sohn
Texas College	Johnson Space Center	Virgie Lacey
Texas Southern University	Johnson Space Center	Reginald Todd
Texas State Technical College	Johnson Space Center	Myriam Aguila
Texas State University	Johnson Space Center	Kristina Collins, Beth Bos, Jessica Ligon, Virginia Resta,

		Shelly Forsythe
Texas Woman's University	Johnson Space Center	Mandy Biggers
The College of Lake County	Glenn Research Center	Michelle Proctor
Universidad Metropolitana	Kennedy Space Center	TBD
University of Arizona	Armstrong Flight Research	
	Center	TBD
University of Arkansas	Marshall Space Flight Center	Michael Daugherty, Vinson Carter
University of California, Riverside	Jet Propulsion Laboratory	Catherine Lussier, Henri Shimojyo
University of Houston Clear Lake	Johnson Space Center	Linda Sansing
University of Montana	Ames Research Center	Georgia Cobbs, Martin Horejsi
University of Nevada, Las Vegas	Armstrong Flight Research Center	Jeffrey Shih
University of Puerto Rico at Arecibo	Kennedy Space Center	Angel Acosta-Colon
University of Puerto Rico at Mayaguez	Kennedy Space Center	Rebeca Orama
University of Puerto Rico, Rio Piedras Campus	Kennedy Space Center	Lizzette Velazquez-Rivera
University of Southern California	Jet Propulsion Laboratory	Fred Freking
University of Texas at Arlington	Johnson Space Center	Lidia Morris
University of Texas Rio Grande Valley	Johnson Space Center	Gus Valencia, Omar Elizondo
University of Texas San Antonio	Johnson Space Center	TBD
University of the Incarnate Word	Johnson Space Center	David Campos, Stephanie Grote- Garcia
University of the Virgin Islands	Kennedy Space Center	
Valencia College	Kennedy Space Center	Elise Gruber, Rhonda Oehlrich
Virginia State University	Langley Research Center	Patricia Aldridge
William Paterson University	Goddard Space Flight Center	Djanna Hill, Jyoti Champanerkar
Xavier University of Louisiana	Marshall Space Flight Center	Rachel Davis-Haley

#### **REFERENCES**

*NASA Education Implementation Plan 2015–2017.* (2015). Retrieved August 10, 201, from <a href="https://www.nasa.gov/sites/default/files/atoms/files/nasa\_education\_implementation\_plan\_2015-2017.pdf">https://www.nasa.gov/sites/default/files/atoms/files/nasa\_education\_implementation\_plan\_2015-2017.pdf</a>